

**CLAIM AMENDMENTS**

Claims 1 through 43 (Cancelled).

44. (Previously presented) A method of producing a chemical monolayer construction, said method comprising:

- (a) providing a substrate consisting of conductive carbon, said substrate having a contact surface; and
- (b) reacting a chemical precursor bearing molecular units with said substrate so as to form a monolayer of a plurality of substantially parallel molecular units attached to said contact surface of said substrate, wherein said molecular units are attached to said substrate through a conjugated bond and wherein said molecular units have an average length, said contact surface of said substrate has a roughness value substantially less than or equal to said average length of said molecular units.

45. (Cancelled).

46. (Cancelled).

47. (Previously presented) A chemical monolayer construction, said construction comprising:

- (a) a substrate consisting of conductive carbon, said substrate having a contact surface; and

- (b) a monolayer of a plurality of substantially parallel molecular units attached to said contact surface of said substrate through a conjugated bond.

48. (Previously presented) The chemical monolayer construction according to claim 47, wherein said molecular units have an average length and said contact surface of said substrate has a roughness value that is substantially less than or equal to said average length of said molecular units.

49. (Previously presented) A chemical monolayer construction according to claim 47 wherein said substantially parallel molecular units are of substantially the same length.

50. (Previously presented) A chemical monolayer construction according to claim 47 wherein said substantially parallel molecular units comprise at least two types of molecular units of different lengths.

51. (Previously presented) A chemical monolayer construction according to claim 47 wherein said roughness value is less than 200 Angstroms.

52. (Previously presented) A chemical monolayer construction according to claim 47 wherein said roughness value is less than 20 Angstroms.

53. (Previously presented) A chemical monolayer construction according to claim 47 wherein said roughness value is less than 5 Angstroms.

54. (Previously presented) A chemical monolayer construction according to claim 47 additionally comprising a source of electrical current supplied to said substrate so as to be conducted by said plurality of substantially parallel molecular units.

55. (Previously presented) A chemical monolayer construction, said construction comprising:

- (a) a substrate having a contact surface; and
- (b) a monolayer of a plurality of substantially parallel molecular units attached through a conjugated bond to said contact surface of said substrate, wherein said substantially parallel molecular units comprise at least two types of molecular units of different lengths.

56. (Currently amended) The chemical monolayer construction according to claim 55 wherein said substrate comprises conductive carbon.

57. (Previously presented) The chemical monolayer construction according to claim 55 wherein said molecular units have an average length, said contact surface of said substrate having a roughness value that is less than or equal to said average length of said molecular units.

58. (Previously presented) The chemical monolayer construction according to claim 55 wherein said roughness value is less than 200 Angstroms.

59. (Previously presented) The chemical monolayer construction according to claim 55 wherein said roughness value is less than 20 Angstroms.

60. (Previously presented) The chemical monolayer construction according to claim 55 wherein said roughness value is less than 5 Angstroms.

61. (Previously presented) The chemical monolayer construction according to claim 55 additionally comprising a source of electrical current supplied to said substrate so as to be conducted by said plurality of substantially parallel molecular units.

62. (Previously presented) A chemical monolayer construction, said construction comprising:

(a) a substrate comprising conductive carbon, said substrate having a contact surface; and

(b) a monolayer of a plurality of substantially parallel molecular units attached to said contact surface of said substrate through a conjugated bond, wherein said substantially parallel molecular units comprise at least two types of molecular units of different lengths.

63. (Previously presented) The chemical monolayer construction according to claim 62, wherein said molecular units have an average length and said contact surface of said substrate has a roughness value that is less than or equal to said average length of said molecular units.

64. (Previously presented) The chemical monolayer construction according to claim 62, wherein said roughness value is less than 200 Angstroms.

65. (Previously presented) The chemical monolayer construction according to claim 62, wherein said roughness value is less than 20 Angstroms.

66. (Previously presented) The chemical monolayer construction according to claim 62, wherein said roughness value is less than 5 Angstroms.

67. (Previously presented) The chemical monolayer construction according to claim 62 additionally comprising a source of electrical current supplied to said substrate so as to be conducted by said plurality of substantially parallel molecular units.